

REMARKS

Reconsideration of this application is respectfully requested. The claims have been amended to clarify that the primary electron beam is propagated along an optical axis, diverted to propagate along a secondary optical axis that is parallel to but spaced apart from the optical axis, and subsequently diverted so as to again propagate along the optical axis, and to recite first and second in-lens detectors, where the second in-lens detector is positioned to detect electrons that pass through an aperture in the first in-lens detector. Support for these amendments is found in the specification as filed, for example at paragraphs [0025] and [0027] and Figure 2b. No new matter is added by any of these amendments.

None of the cited references, whether considered alone or in combination with one another, teach or suggest a system or method in which a the primary electron beam is propagated along an optical axis, diverted to propagate along a secondary optical axis that is parallel to but spaced apart from the optical axis, and subsequently diverted so as to again propagate along the optical axis, and which involves first and second in-lens detectors, where the second in-lens detector is positioned to detect electrons that pass through an aperture in the first in-lens detector, as presently claimed.

Bowes, US Patent 6,778,275, discusses aspects of a overlay measurement scheme involving non-overlapping features, but is vague when describing intermediate layers. That is, it is unclear whether Bowes is describing layers that are positioned between layers in which feature of the overlay measurement target are found (e.g., in between layers 630 and 640) or other layers between a substrate and a lower layer in which feature of the overlay measurement target are found (e.g., layers such as layer 620). Regardless of which scenario Bowes is actually describing, none of the above-mentioned reasons for patentability are impacted.

Sawahata, US Patent 6,501,077, is cited for the use of an SEM to detect electrons. Sawahata does use multiple detectors, but does not discuss propagating the primary electron beam along an optical axis, diverted to propagate along a secondary optical axis that is parallel to but spaced apart from the optical axis, and subsequently diverted so as to again propagate along the optical axis towards the inspected object. Therefore, even if Sawahata teachings regarding the use of multiple detectors were combined with those of Bowes, features of the present claims would still be absent. Accordingly, the claims are patentable over this combination of references.

Chen, US Patent 6,064,486, is cited for modifying the combination of Bowes and Sawahata to provide an apparatus for projecting a beam to underlying patterns and detecting the position of an alignment mark. Such teachings, even when combined with Bowes and Sawahata, do not address the deficiencies notes above. Therefore, the claims remain patentable over the combination of these references.

Hiroi, US Patent 6,172,365, is cited for modifying the combination of Bowes and Sawahata to provide for precharging of the inspected object. Such teachings, even when combined with Bowes and Sawahata, do not address the deficiencies notes above. Therefore, the claims remain patentable over the combination of these references.

If there are any additional fees due in connection with this communication, please charge Deposit Account No. 19-3140.

Respectfully submitted,
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